University of Scranton W3USR Teaching Amateur Radio at the Lackawanna Blind Association

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Introduction

Access to amateur radio can be life-changing for individuals who are blind or visually impaired. Radio communication provides an accessible, independent, and engaging way to connect with others; it helps foster both technical skills and social interactions. The University of Scranton W3USR, working in collaboration with local amateur radio operators and the Lackawanna Blind Association (LBA), has launched a program to teach amateur radio to people who are blind and visually impaired using the Handiham curriculum. This initiative enables blind and visually impaired individuals to engage with and become licensed amateur radio operators through an accessible learning experience that they look forward to each week. This project has support from all different angles and has shown some promising results.

Figure 1: This picture depicts the class on week 16 where we handed out handheld radios for the class to learn with and listen to the weekly Murgas Amateur Radio Club 2 meter net.

Independence and Connectivity

- Amateur radio allows participants to communicate with people across the world without relying on visual interfaces.
- The students express excitement about their weekly classes finding joy in learning new skills and making radio contacts.
- Learning radio operation and earning a FCC license empowers students, providing a sense of accomplishment and belonging in the amateur radio community.
- Emergency Communication Skills: Participants gain knowledge that can be valuable in emergencies, allowing them to assist in disaster response efforts using the radio.

Figure 2: This picture shows a student at the University of Scranton KE2BAC and professor W2NAF working together to teach the class.

Teaching Methods and Adaptations

- Handiham Curriculum: The program utilizes the Handiham curriculum (https://handiham.org/), which offers accessible teaching that is tailored to auditory learning. Each chapter has a list of practice questions to help reinforce the material.
- Weekly Meetings: Classes are held once a week at the Lackawanna Blind Association, facilitated by student volunteers and community amateur radio members.
- Zoom Audio Recordings: Each session is recorded and made available to students, allowing them to review lectures at their own pace.
- Tactile learning: Students are often handed physical radio equipment to understand the many radio components. We even handed each member of the class handheld radios on receive only mode so they can get a feel for the hobby before they get their license.
- Hands-On Practice: Participants are given opportunities to operate radios at the W3USR station with some adapted interfaces.

Figure 3: This picture shows a screenshot of the zoom recording from the class on week 10. All the classes are recorded so the students can relisten to them at any point, this helps them to solidify what they have learned and to learn the material in the case they missed class that day.

Student Engagement and Outcomes

- Skill Development: Students learn radio communication protocols, FCC regulations, and technical knowledge necessary to obtain their amateur radio license.
- Community Involvement: The program fosters engagement with the local ham radio community, encouraging mentorship and support for participants.
- Exam Preparation: Volunteers assist students in preparing for the Technician Class License exam using auditory study materials and practice tests.
- Personal Enjoyment: Beyond the technical aspects, students find great personal enjoyment in being part of the amateur radio world, making new friends, and participating in radio nets.

Challenges and Solutions

- Accessibility of Study Materials: We provide braille and audio versions of key study guides to supplement online resources.
- Equipment Adaptations: Specially designed radios with voice output and tactile controls help students independently navigate radio frequencies.
- Transportation Barriers: Zoom recordings help students who cannot attend in person stay engaged and keep up with the curriculum.

Potential Future Directions

- Expanding the program to include additional levels of amateur radio licensing (General and Extra Class)
- Partnering with more local radio clubs to provide mentorship and hands-on training
- Developing a standardized toolkit for other organizations interested in launching similar programs

Figure 4: This is a collage of photos where we can see members from the Lackawanna Blind Association visit W3USR the University of Scranton's amateur radio club. Here we had tactile equipment for the students to try out and we also had several volunteers help teach the students how to use the radio station. This was a great opportunity for hands on learning and it is one of the many ways the University of Scranton strives for community involvement and public outreach.

Figure 5: This picture depicts a group photo with all the instructors that teach the class. This group is made up of not just students, and professors, but also community members who are crucial to success of our class. We would not have had this much success without all the members in this photo.

Acknowledgements

We extend our gratitude to the wonderful people at the Lackawanna Blind Association who help us to work with the students, the Handiham organization for giving us a solid curriculum that our work in centered on, the University of Scranton Community Based Learning Program, and all the volunteers who dedicate their time to making this program a success. All these parts come together to help us give the students their best opportunity in excelling and furthering their knowledge of radio science.

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